normal; the greatest monthly amount, 4.30, occurred at Koepenick, and the least, 0.83, at Racine.—*W. M. Wilson.*

Wyoming.—The mean temperature was 43.2°, or 1.7° above normal; the highest was 85°, at Douglas on the 20th and at Bittercreek on the 26th, and the lowest, 10° below zero, at Laramie on the 11th. The average precipitation was 4.46, or nearly three times the April normal; the greatest monthly amount, 9.50 (snow, 95.0), occurred at Sherman, and the least, 1.06, at Basin. The following excessive amounts were reported: Centennial, 8.63; Cheyenne, 7.66; Fort Laramie, 7.48; Embar, 7.36; Four Bear, 6.27; Lander, 7.19.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

SPECIAL REPORT ON THE FLOODS IN THE COLORADO VALLEY, TEXAS, APRIL 7 TO 17, 1900, AND OTHER FLOODS DURING THE SAME PERIOD.

By I. M. CLINE, Local Forecast Official and Section Director, dated May 15, 1900.

The Colorado is the second river in size and length in Texas. Its source is in northwest Texas near the southeast corner of New Mexico. It traverses the State from northwest to southeast, has a very tortuous channel, and empties into the Gulf of Mexico near the center of the Texas coast. The gradient of this river is quite steep north of latitude 30° 20′, the elevation at this latitude being 500 feet, while at the source of the river the altitude is nearly 3,000 feet. The channel of the Colorado River is very deep, ranging from 30 to 50 feet. There are, as with other Texas streams, first and second bottoms. The first bottoms through the northern and central portions of the drainage basin of the Colorado are narrow, frequently not more than 50 to 100 yards in width, and terminate abruptly in steep banks. These banks vary in height in different places from a few feet to several feet, and are styled the second banks; back of these are the second bottoms. In the lower Colorado Valley the first bottoms are more extensive and the distinction between these and the second bottoms is less marked. Stock raising is the principal industry throughout the more northern portion of the Colorado basin, while over the southern portion this industry is varied with extensive agricultural interests, even in the immediate vicinity of the river.

One of the most striking features of the Colorado River, in recent years, has been the dam across the stream at Austin. The length of this dam was 1,250 feet and its height 60 feet. The width of the reservoir was 1,000 feet, its depth 65 feet, and its length 30 miles. The dam was constructed of granite and cost in the neighborhood of $1,000,000.

The floods coincident with the bursting of the Austin dam April 7, 1900, resulted from unusually general heavy rains which fell throughout the drainage basin of the Colorado River on April 5, 6, and 7. The following stations report precipitation during these three days amounting to 5.00 inches or more: Austin, 7.10; Blanco, 6.60; Boerne, 6.30; Brownwood, 5.30; Colorado, 8.80; Duval, 5.20; Ira, 6.39; Langtry, 5.00; Luling, 5.15; New Braunfels, 5.38; San Marcos, 6.48; and Turnersville, 5.90. There are a number of stations which report between 3.00 and 5.00 inches during the same period. Nearly all rains which exceeded 4.00 inches during this period occurred at elevations ranging from 500 to more than 2,000 feet, and were over that portion of the State where the gradients are steep. The meteorological conditions which existed prior to and at the time of the occurrence of these heavy rains may be summed up as follows: An area of low pressure of moderate intensity covered the southeastern Rocky Mountain slope, April 3, 4, and 5. On April 3 an area of high pressure made its appearance over the upper Mississippi and Missouri valleys; during April 4 and 5 this anticyclonic disturbance increased in intensity and moved southward to the Ohio Valley and Tennessee, causing very steep barometric gradients to the northeast of Texas. On April 6 the high pressure remained stationary over the Ohio Valley and Tennessee, but the gradients were not so steep as on the previous date; the area of low barometer had moved southward and covered western Texas with a well-defined cyclonic movement of the atmosphere, although the barometer was not below 29.92 inches. On April 7 the barometer had fallen throughout the country and the disturbance which had remained nearly stationary over the southeastern Rocky Mountain slope and Texas for four days had moved southward into the Gulf of Mexico and was apparently central to the east of the mouth of the Rio Grande River.

While the conditions shown on the weather charts are such as generally give precipitation in Texas it is difficult to account for such heavy rains as occurred over a great portion of the State from April 5 to 7, inclusive. The topography of the territory covered by the rain area taken in conjunction with the wind direction, as shown by the weather charts on these dates, may be considered an important factor in producing these rains. It is observed that there was a conflict between the cool northerly and warm southerly winds over the eastern portion of the low pressure area which would have a tendency to form rapidly ascending air currents, a condition to which it appears that we must look for the cause of such phenomena.

The following table gives the rainfall in Texas during the flood period, from April 5 to 17, inclusive.

Station.	Rainfall.	Station.	Rainfall.	Station.	Rainfall.
	Ins.		*Ins.*		*Ins.*
Abilene	2.05	El Paso	T.	Longview	0.35
Alpine	0.03	Emory	0.64	Luling	5.15
Alvin	1.42	Estelle	2.90	Mann	4.23
Alice	1.00	Fort Clark	3.45	Menardville	2.00
Amarillo	3.11	Fort McIntosh	2.10	Mount Blanco	4.05
Anna	1.34	Fort Ringold	0.00	New Braunfels	5.38
Anson	2.10	Fort Stockton	1.18	Palestine	2.00
Arthur City	0.20	Fort Worth	3.50	Panter	3.96
Austin	7.10	Forestburg	1.56	Paris	0.00
Ballinger	1.12	Gainesville	2.50	Point Isabel	1.00
Beaumont	0.00	Galveston	1.13	Rhineland	1.68
Beeville	2.10	Georgetown	4.00	Rockisland	3.21
Bigspring	2.91	Grapevine	2.98	Runge	3.70
Blanco	6.60	Greenville	0.52	Sabine	2.30
Boerne	6.30	Hale Center	3.26	Saginaw	3.70
Bowie	2.19	Hallettsville	1.80	San Antonio	4.28
Brazoria	1.86	Haskell	1.63	San Marcos	6.48
Brenham	1.58	Henrietta	1.48	Santa G. Ranch	0.26
Brighton	1.44	Hewitt	3.40	Sherman	0.00
Brownwood	5.30	Hondo	4.75	Sugarland	1.50
Burnet	4.08	Houston	2.00	Sulphur Springs	0.38
Camp Eagle Pass	4.00	Hulen	1.01	Temple	2.67
Coleman	3.10	Huntsville	0.80	Texarkana	0.32
Colorado	8.80	Ira	6.39	Tulia	4.50
Columbia	0.70	Jacksonville	0.49	Turnersville	5.90
Corpus Christi	1.26	Jasper	0.70	Tyler	0.40
Corsicana	2.94	Kent	0.00	Victoria	1.48
Cuero	2.49	Kerrville	5.93	Waco	3.27
Dallas	2.30	Lampasas	4.58	Waxahachie	3.00
Danevang	1.48	Langtry	5.00	Weatherford	2.95
Dublin	4.38	Llano	4.65	Wichita Falls	0.06
Duval	5.20				

From a study of the rainfall by dates there appears to have been two rain areas. On April 5 heavy rains occurred over the southwestern portion of the panhandle. On the same date another area of heavy rainfall appeared along the Lower Rio Grande in the counties of Val Verde, Kinney, and Maverick, more than 300 miles south of the rain area in the panhandle. On April 6 the rain area from the panhandle moved toward the southeast, giving very heavy rains over the upper drainage basins of the Colorado and Brazos rivers. There was apparently a veritable cloudburst in Irion County judging from the local floods and the overflows which followed in the bottoms of the South Concho River. The rain area from

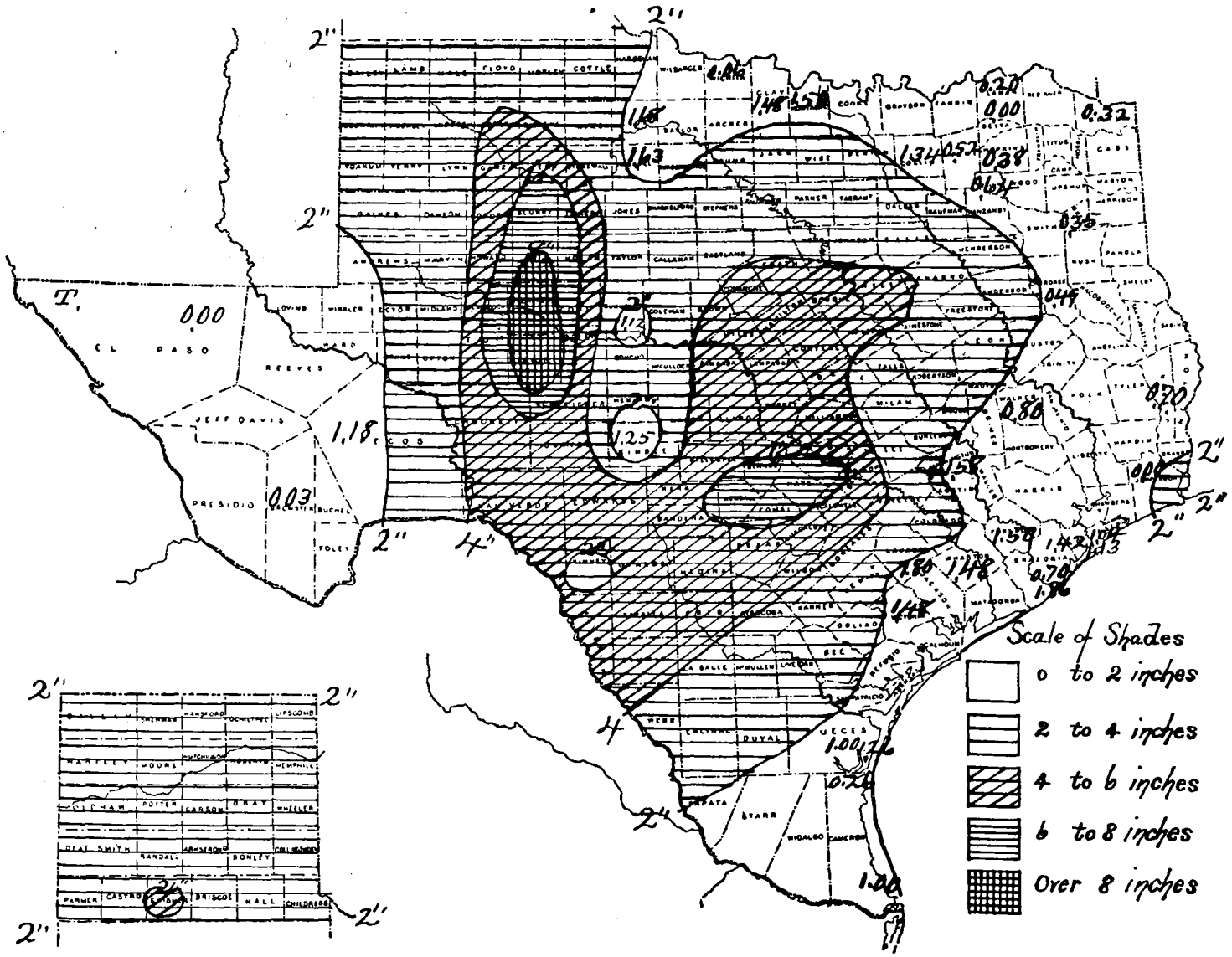

FIG. 1.

the Lower Rio Grande moved toward the northeast during April 6 and covered the central portion of the Colorado drainage basin. On April 7 the two rain areas appear to have united over the central part of the State; very heavy rains fell during the 24 hours ending at 8 a. m. of this date from the central part of the Texas coast northward to the Red River. The heaviest rains were, however, over the source of the Guadalupe River, the central Colorado basin and the northern portion of the central Brazos basin. There was no precipitation of consequence from April 8 to 14, inclusive.

The geographical distribution of rainfall in Texas during the flood period is shown in fig. 1, which has been drawn to represent the rainfall as given in the preceding table.

The heavy rains throughout the central and upper portions of the Colorado basin had filled the river almost to the top of its highest banks and was causing overflows in low places. The upper portion of the river was higher in some localities than in the memory of the oldest settler, and while carrying this flood the dam at Austin gave way under the pressure and added its volume of water to swell the already raging torrent. The news that the dam had broken reached the United States Weather Bureau Office, Galveston, about 6:30 p. m., April 7, by telegram from Mr. W. R. Neville, voluntary observer, Austin, as follows:

Six and half inches of rain last night. Dam broken.

Immediately on receipt of this telegram the following warning was telegraphed to all points along the Colorado River south of Austin:

Six and one-half inches of rain at Austin and dam broken. Sudden and decided rise in Colorado River is probable within next few days. Please distribute information.

The flood did great damage at Austin and in that vicinity. Besides the injury to the dam, the power house, and several other buildings were destroyed. Several lives were lost in Travis County. The flood caught 9 men in the power house at Austin, and 8 of these were drowned. Fifteen other persons were drowned in Travis County on the same date, April 7.

The crest of the flood reached Bastrop, April 8, where at 5 p. m. the river had risen 43 feet and was the highest since 1869. The town was completely surrounded by water and was cut off from communication with neighboring communities. The river was rising at an alarming rate in the vicinity of Smithville on the morning of April 8, and had already covered the bottoms; at 7:20 p. m. of that date, the crest of the flood reached Smithville, and the river stood 40 feet above low water, which is the highest point reached since 1869. The width of the overflow in Bastrop County ranged from 1 to 3 miles, except some high banks which were not submerged. The flood passed La Grange late in the evening of April 9, giving a rise of 47 feet above low water. All lowland was

submerged, the river being out of its second banks in places and ranged in width from 2 to 4 miles, except that high banks were not covered with water. The lower portion of La Grange was inundated. The advance portion of the flood reached Columbus during the evening of April 9, but the rise here was not so rapid as at points above, where the crest of the flood passed within eighteen to twenty-four hours from the time of the commencement of the decided rise. The rise at Columbus during April 10 was 5 feet, which made a total rise above low water of 34 feet. The river was not as high on this occasion by 4.5 feet as it was in 1869 and 1870. On April 13, all the streets of Wharton, within three blocks of the river, were under water, and on the following day all of the town, except Victor's addition, was flooded. The river at Wharton was higher than during any previous overflow. Through Colorado and Wharton counties the width of the flood ranged from 2 to 4 miles, while in Matagorda County it was 4 to 12 miles. The crest of the flood reached the Gulf of Mexico April 17, having consumed eleven days between Austin and the mouth of the river, but the greater portion of this time was consumed after reaching Wharton County. The floods from the upper drainage basin of the Colorado River maintained a high stage of water near the mouth of the river up to the middle of May.

The floods of the Upper Colorado were confined mostly to the South Concho River and its tributaries. In Irion County eight persons were drowned and stock and buildings valued at $7,500 were destroyed. In Tom Green County stock and ranch property valued at $75,000 and buildings at San Angelo valued at $7,000 were lost through the floods. Press reports state that cattle losses were heavy in Concho County, but I have been unable to get reports regarding this. Other counties north of Travis report the damage slight, except as follows, where the estimated damage is given: Mills, $250; Lampasas, $1,000; San Saba, $1,500; Burnet, $5,000. From Travis County south the estimated losses as a result of the floods are as follows: Travis, $1,020,000; Bastrop, $50,000; Fayette, $14,000; Colorado, $80,000; and Matagorda, $10,000. The information received from Wharton County is not sufficient to enable a reliable estimate of the damage done in that county to be made.

A striking feature in connection with this flood, when its suddenness and extent are considered, is the small losses sustained south of Travis County. Stock, farming implements, and personal effects had been moved to high ground as a result of the warning referred to above. The value of the warning can not be estimated, but reports show that it saved to the people of the Colorado Valley thousands of dollars. At Smithville stock were moved out of the bottoms on the night of April 7, after the receipt of the warning; by the following morning the flood had reached such proportions in that section that it would have been impossible to have saved them. Lower down in the valley people had more time for preparation, and press reports sent out from the several localities show that the warning was heeded and that no time was lost in getting property into places of safety. Another feature of importance is that no lives were lost south of Travis County.

The following reports from some of the towns along the Colorado River convey some idea as to the value of the warning:

Smithville.—E. G. Winston: The flood warning was received and the information promptly distributed. The warning was of great benefit to farmers and stockmen, as all cattle were run out of the bottoms, where they would have been cut off by the water and drowned. One stockman saved 250 head of young cattle; the pasture they were in was flooded the next morning (April 8). The river covered all low lands. But few houses were destroyed here, for after receipt of the warning many houses were tied to their places with ropes and saved. The chances are that many lives and a large amount of property would have been lost without the news of the breaking of the dam.

Altair.—Paul Schneider: The people here had received the news of the breaking of the Austin dam through the railroad people before your telegram arrived, but in general they did not believe it. After receiving your telegram, we did our best to let all know; people took the matter seriously and prepared for the same; consequently no lives were lost, whereas there would have been a great many if the warning had not been received. The river averaged 3 miles wide. The warning resulted in saving thousands of stock, as people drove them to high land after being warned.

Columbus.—L. Weete: Your warning was well distributed throughout the country, both up and down the river. The value of the warning in saving stock and other property is hard to tell, but I estimate that about 3,000 head of cattle and horses were taken out of the bottoms before the water reached them.

The Galveston Daily News of April 29, 1900, commenting on flood warnings recently issued for rivers in Texas says:

The value of such warnings can hardly be estimated, because the people have learned to rely so fully on the weather warnings of the Weather Bureau that they heed any warning received. This was most forcibly brought out in the case of the overflow of the Colorado River. In sections where the news of the breaking of the dam at Austin was received through the warnings of the Weather Bureau prompt and decisive action was taken to save life and property. Reports sent out have shown that the savings as a result of that warning were enormous and the loss of life was reduced to a minimum.

The extent of the flooded area is shown in fig. 2. The information on which this chart is based was carefully and systematically collected, and it is believed that it represents the flooded area as nearly as it can be shown. There are several high places along the banks of the river which were not overflowed but which can not be well shown through the shading.

FLOODS IN THE GUADALUPE RIVER VALLEY, APRIL 7–12, 1900.

On April 7 there were freshets throughout southwest Texas, and a flood of considerable extent made its appearance in the Guadalupe Valley. This river and its tributaries have their sources near the intersection of the thirtieth parallel of latitude with the ninety-ninth meridian. There is a rapid increase in elevation in this portion of the State, being nearly 1,000 feet in 75 miles. The country is broken with deep ravines and creeks, and in places is much sculptured by erosion. We have already noted that the excessive rains extended over the northern half of the drainage basins of the Guadalupe and San Antonio rivers, but more especially over the source of the Guadelupe, which is near the central Colorado basin. The configuration of the land near the source of the Guadalupe is such that nearly all the water from heavy rains is quickly carried into the ravines and creeks and by these into the rivers. These streams rise with phenomenal rapidity, but, their channels being very deep, it is only when excessive rains are general that overflows result. Many of the small streams will carry a rise of 50 to 60 feet without overflowing their banks. When a number of the small streams are thus filled, their simultaneous discharge, as it were, into the rivers cause very sudden overflows. This was the case with the flood in the Guadalupe River April 7 to 12, 1900. The waters came principally from Comal, Guadalupe, Caldwell, Hays, and Gonzales counties. A 30-foot rise occurred in the San Marcos River, and this met with a greater rise in the Guadalupe at their junction in Gonzales County. The flood reached Gonzales County during the night of April 7, with a phenomenally sudden rise, resembling the rush of water from a burst dam. The flood passed out of De Witt County on April 10, and reached Victoria during the night of April 11, where it approached close to the highest water ever recorded.

The counties suffering greatest damage from the Guadalupe flood are: Hays, Caldwell, Guadalupe, and Gonzales. Two persons were drowned in Gonzales County. South of De Witt County much of the bottoms is used for grazing purposes, and the damage to agricultural interests was not very great. A large number of stock were drowned by this flood.

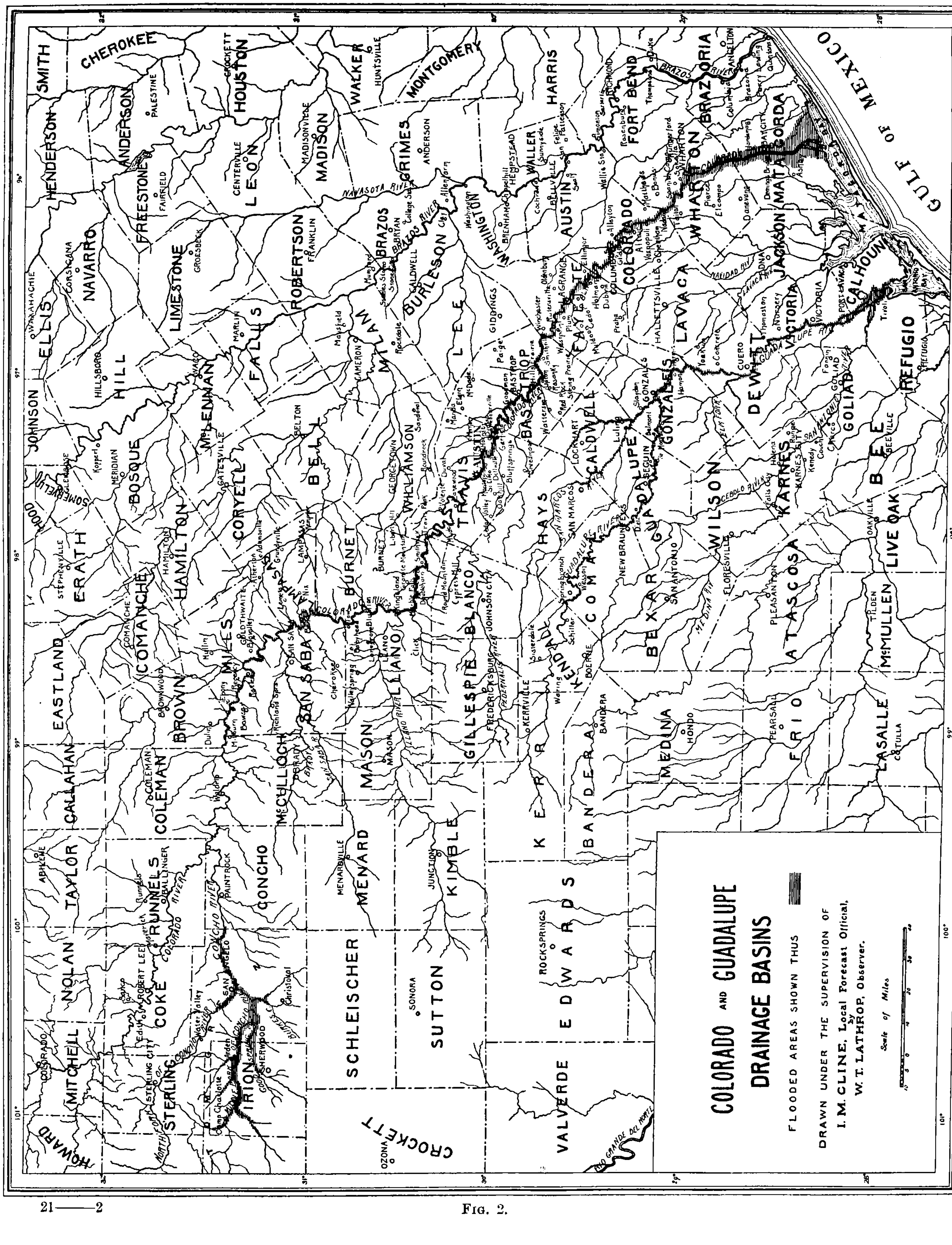
COLORADO AND GUADALUPE
DRAINAGE BASINS
FLOODED AREAS SHOWN THUS
DRAWN UNDER THE SUPERVISION OF
I. M. CLINE, Local Forecast Official,
by
W. T. LATHROP, Observer.
Scale of Miles
GULF OF MEXICO
COLORADO RIVER
GUADALUPE RIVER
BRAZOS RIVER
NAVASOTA RIVER
CONCHO RIVER
LLANO RIVER
SAN SABA RIVER
SAN ANTONIO RIVER
MEDINA RIVER
PEDERNALES RIVER
RIO GRANDE DEL NORTE
AUSTIN
SAN ANTONIO
VICTORIA
COLUMBUS
LAGRANGE
WHARTON
BASTROP
GONZALES
SEGUIN
NEW BRAUNFELS
SAN MARCOS
KERRVILLE
FREDERICKSBURG
SAN ANGELO
BALLINGER
BROWNWOOD
LAMPASAS
GEORGETOWN
BELTON
CAMERON
HEMPSTEAD
RICHMOND
HUNTSVILLE
PALESTINE
CORSICANA
WAXAHACHIE
HILLSBORO
WACO
CUERO
GOLIAD
BEEVILLE
PEARSALL
COTULLA
HONDO
BANDERA
BOERNE
SONORA
ROCKSPRINGS
OZONA
JUNCTION
MENARDVILLE
PAINTROCK
COLEMAN
ABILENE
COLORADO
STERLING CITY
ROBERT LEE
SHERWOOD

FIG. 2.

The extent of the overflow along the Guadalupe River is shown in fig. 2.

Freshets occurred on April 7 throughout the drainage basin of the San Antonio River, but there was no extensive overflows along this stream.

Much damage resulted to agricultural interests throughout the greater portion of southwest Texas from beating and washing rains. Reports indicate that the greatest proportion of crops planted (mostly cotton) destroyed both by excessive rains and overflows was as follows in the counties named: Bastrop, three-fourths; Bexar, one-fourth; Caldwell, three-fourths; Comal, one-third; Colorado, one-half; Fayette, one-fourth; Guadalupe, one-half; Gonzales, one-third; Karnes, one-fourth; Matagorda, one-fourth; and Wilson, one-half. With average weather the crops can be replanted sufficiently early to mature a good yield should a favorable season prevail.

FLOODS IN THE BRAZOS VALLEY.

The rainfall chart, fig. 1, shows excessive rains throughout the upper portion of the drainage basin of the Brazos River. These rains filled the upper portion of the river nearly bank full. This volume of water moved slowly southward and reached the central portion of the drainage basin of the Brazos in the third decade of April. During this time general rains fell throughout the State, which maintained the Brazos River at a high stage. On April 27 and 28 excessive rains fell throughout the Brazos drainage basin, which, with the volume of water already in the river, caused a flood which approached closely to that of last July. The crest of this flood has not yet (May 15) passed out at the mouth of the river, but is in Brazoria County, where the water is within 1.8 feet of the highest water of the flood of July, 1899. A report covering the Brazos River flood of April 28 to May 15, 1900, will be prepared and forwarded for publication in the MONTHLY WEATHER REVIEW for May, 1900.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Meteorologische Zeitschrift. Wien. Band 17.

Bjerknes, V. Das dynamische Princip der Cirkulationsbewegungen in der Atmosphäre. P. 145.

Danckelman, A. v. Klima von Neu-Guinea. P. 157.

—— Vereinsnachrichten. P. 165.

—— Dr. Joseph Krist. P. 167.

—— Ausserordentlicher Schneefall in Wien und Umgebung P. 169.

Erk, —. Die wissenschaftlichen Ballonfahrten am 3 Oktober 1899. P. 171.

—— Wirksamkeit des Hagelschiessens auf unterkühlte Tröpfchen. P. 173.

Ecker, Stefan. Haloerscheinungen. P. 174.

Gockel, A. Luftelektricität und Temperatur. P. 175.

Moller, A. Ueber Umbildung von Cumuluswolken. P. 176.

Suring, R. Verschiedene Arten von Haufenwolken. P. 177.

Flogel, Dr. Bildung von Cumulus-Wolken durch eine Feuersbrunst. P. 179.

Hann, J. Haufenwolken über einer Feuersbrunst Leuchtende Nachtwolken. P. 182.

Koppen, W. Hauptsätze über die Temperaturvertheilung in der Erdatmosphäre. P. 182.

Mack, K. Eine ungewöhnliche Luftspiegelung. P. 187.

—— Meteorologische Beobachtungen im Innern von China. P. 189.

Petermann's Mitteilungen. Gotha. 46 *Band.*

Pettersson, O. Die Wasserzirkulation im Nordatlantischen Ozean. (Schluss). P. 81.

Nature. London. Vol. 61.

Rotch, A. L. The eclipse wind. P. 589.

Clayton, H. H. Recent Exploration in the Upper Air and its bearing on the Theory of Cyclones. P. 611.

Himmel und Erde. Berlin. 12 *Jahrg.*

Hapke. Die Warmwasserteiche an der Westküste Norwegens. P. 316.

Geographical Journal. London. Vol. 15.

Schott, G. Oceanographical and Meteorological Work of the German "Valdivia" Expedition. P. 518.

Ciel et Terre. Bruxelles. 21*me Année.*

Zeuger, C. V. La Météorologie électrodynamique et son application à la prévision des grandes perturbations atmosphèrique. P. 109.

Sitzungsberichte der kaiserlichen Preussischen Akademie der Wissenschaften. Berlin. 1900.

Bezold, W. v. Zur Thermodynamik der Atmosphäre P. 356.

Archives des Sciences Physiques et Naturelles. Genève. 4 *Période. Tome* 9.

Gautier, R. Observations météorologiques faites aux fortifications de Saint Maurice pendant l'année 1898. (Suite et fin). P. 334.

Das Wetter. Berlin. 17 *Jahrg.*

Assman, R. Die Sonnenstrahlung. P. 81.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, March, 1900.

The station is at 21° 18′ N., 157° 50′ W.

Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours has always been measured at 10:29 p. m., not 1 p. m., Greenwich time, on the respective dates.

The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:29 a. m., Honolulu time.									Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.		
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	29.98	70	59.5	78	66	58.5	68	ne.	4	4	30.04	29.94	0.02
2	29.96	70	62	77	68	55.0	60	nne.	4-2	4	30.02	29.94	0.02
3	29.94	71	63.5	78	66	58.7	62	ne.	4	5	30.01	29.90	0.00
4	29.99	66	64	80	70	61.7	71	ne.	3	7	30.05	29.95	0.08
5	29.98	63	62	81	64	63.5	78	ne.	3	3	30.04	29.94	0.25
6	29.88	66	63	79	62	63.5	78	w.	1	3-8	30.00	29.87	0.00
7	29.89	67	65	79	65	64.7	75	sw.	1	4-10	29.93	29.84	0.00
8	29.89	68	66	79	67	66.5	81	sw.	3	9	29.93	29.85	0.15
9	29.90	60	57.5	80	66	66.3	80	sw-w.	3	‖	29.94	29.83	0.01
10	29.95	59	57	78	60	56.3	66	w.	3-0	2-4	29.98	29.86	0.00
11	29.90	63	59.5	76	59	57.3	72	sw-s.	2	2-5	29.99	29.90	0.00
12	29.80	72	57	78	60	59.3	67	w-sw.	3	4	29.94	29.82	0.06
13	29.85	59	55.5	79	66	60.7	66	w.	4	8-0	29.87	29.78	0.00
14	29.90	61	59	78	59	55.3	65	sw.	3-1	1-5-1	29.96	29.84	0.00
15	29.98	61	58	78	60	58.7	71	sw.	2-0	3	30.03	29.90	0.00
16	29.93	68	65	80	60	59.7	70	sw.	1-0	¶	30.06	29.93	0.00
17	29.96	66	63.5	81	66	63.3	72	sw.	2	3-6	30.01	29.93	0.02
18	30.00	68	65.5	79	65	62.0	68	n-ne.	0-3	3	30.05	29.98	0.60
19	30.02	71	65	78	66	64.0	77	ne.	0-3	10-5	30.06	29.97	0.01
20	30.00	73	65	80	66	62.3	65	ne.	3	3-7	30.07	29.97	0.05
21	30 04	72	65.5	78	70	61.5	63	ne.	3-5	5	30.08	29.98	0.24
22	30.03	72	65	78	68	62.5	66	ne.	5	4	30.09	30.00	0.07
23	30.04	73	66.5	80	70	62.7	67	ene.	5	5	30.09	30.00	0.02
24	30.02	73	65	79	72	62.3	67	ene.	4	4	30.11	30.01	0.01
25	30.03	73	66	79	72	60.5	61	ne.	4	5	30.12	30.03	0.05
26	29.98	68	64	79	72	61.3	64	ne.	4	4	30.06	29.97	0.01
27	29.93	71	63.5	81	68	61.0	64	ne.	2-4	1	30.01	29.90	0.00
28	29.95	71	64.5	81	71	60.0	61	nne.	3	2	30.00	29.90	0.00
29	29.96	65	63	82	70	62.0	68	ne.	3-0	4	30.02	29.90	0.00
30	29.97	69	62.5	80	64	63.3	77	s.	1	4	30.04	29.94	0.00
31	29.97	62	58.5	79	63	57.7	61	nne.	3	1	30.04	29.95	0.00
Sums.													1.67
Means.	29.955	67.5	64.5	79.1	65.7	61.0	68.6		2.2	4.3	30.02	29.92	
Departure.						—0.5	—4.0			—0.3			—1.60

Mean temperature for March, 1900 (6+2+9)+3=71.8°; normal is 70.6°. Mean pressure for March (9+3)+2 is 29.97; normal is 29.99.